

REMARKS/ARGUMENTS

The Office Action mailed June 27, 2003 has been reviewed and carefully considered. Claims 1-10, 12-18, 20-22, and 29 are pending in this application, with claim 1 being the only independent claim. Reconsideration of the above-identified application in view of the following remarks, is respectfully requested.

In the Office Action mailed June 27, 2003, claims 1-10, 12-14, 20, 22, and 29 stand rejected under 35 U.S.C. §103 as unpatentable over EP 099 264 (Doyle) in view of U.S. Patent No. 3,921,527 (Raschke) and U.S. Patent No. 4,705,696 (Calabrese). Claim 15 stands rejected under 35 U.S.C. §103 as unpatentable over Doyle, Raschke and Calabrese in view of U.S. Patent No. 3,607, 255 (Back). Claims 16 and 17 stand rejected under 35 U.S.C. §103 as unpatentable over Doyle, Raschke and Calabrese in view of U.S. Patent No. 4,103,616 (Chu). Claim 18 stands rejected under 35 U.S.C. §103 as unpatentable over Doyle Raschke and Calabrese in view of U.S. Patent No. 4,020,762 (Peterson). Claim 21 stands rejected under 35 U.S.C. §103 as unpatentable over Doyle Raschke and Calabrese in view of U.S. Patent No. 3,650,797 (Tomanek).

The present invention related to a method for imaging an erasable printing form. The printing form is first charged over its entire surface area (see page 3, line 6 of the specification). Liquid toner particles, which have either individual charges opposite the charges of the printing form or dipole or multi-dipole moments directed opposite the printing form, are applied to and are attracted to the entire surface of the printing form (page 3, lines 7-9). The thickness of the layer of toner particles can be controlled by varying one of voltage and time of the charging of the printing form (page 12, lines 3-5). Image information is applied by a source of energy corresponding to an image to be printed (page 6, line 19 to page 7, line 1). The source of energy causes the toner particles to adhere to the printing form in the region of the image (page 7, lines 2-4). The particles

in the irradiated region, i.e., the regions outside of the region of the image, are completely removed by mechanical, electrical, or ultrasonic treatment (page 7, lines 4-7). After the thus produced printing form is used in a printing process, the printing form may be erased by use of a solvent, an acid or alkaline aqueous solution, a mechanical force, an energy bearing radiation and ultrasound (page 8, lines 8-14 and page 11, lines 10-13). As further stated on page 3, lines 14-18 and on page 11, lines 17-21, the printing form in the present invention may be imaged in a printing press. More specifically, these sections of the specification state that the printing form may be a sleeve-shaped printing form on a form cylinder installed in the printing press.

Independent claim 1 has been amended to recite that the printing form is a sleeve-shaped printing form.

Doyle discloses a method in which powdered toner particles are applied over an entire surface of a printing form. In a subsequent step an image area is exposed to laser light to melt the powdered toner in the image area so that it is fixed to the printing form. The excess powder, i.e., powder in the non-image area is then removed. This method does not seem to apply to liquid toners because liquid toners are already in the liquid form, that is they are already melted. Accordingly, this method of differentiating the image area and the non-image area disclosed by Doyle would not be effective for liquid toner. Further, Doyle disclose that an air knife is used to remove the excess powder toner that is not part of the image (see page 6, lines 17-22). There is no teaching or suggestion that this method of toner removal would be effective for liquid toner.

Furthermore, although Doyle shows that the printing form is grounded in Fig. 1, there is no teaching or suggestion that a charge is applied to it. Rather, a charge is applied to the powdered toner particles. Accordingly, Doyle also fails to teach or suggest charging of the entire

printing form. As acknowledged in the Office Action, Doyle does not specifically disclose controlling the thickness of the fluid toner on a printing form. Doyle also fails to teach or suggest that the printing form is sleeve-shaped. Rather Doyle discloses that the printing form is a flat substrate in Fig. 1 and that the printing form is sheet arranged on a drum in Fig. 2.

Accordingly, Doyle fails to disclose, teach or suggest the steps of (1) charging a sleeve-printing form over its entire surface, (2) applying liquid toner to an entire surface of a print form, (3) controlling the thickness of the layer of liquid toner particles applied to a printing form, or (4) erasing the printing form after use in a printing process. Doyle also fails to teach or suggest that the printing form is sleeve-shaped.

Raschke fails to teach what Doyle lacks. Raschke discloses a device for making a reusable print master. Raschke also teaches the use of powdered toner. There is no teaching or suggestion that liquid toner could be used. Raschke discloses that a belt is charged and that a powdered toner is applied to the belt. The toner is also charged such that it adheres to the belt by electrostatic charge. After the powdered toner is applied to the belt, the charge on the powdered toner particles is discharged in the image area such that the toner particles in the background remain adhered to the belt by electrostatic charge and the toner particles in the image area are loose because of the discharge of charge (col. 4, lines 34-43). The image is then transferred in Raschke by pressing a master against the image such that only the loose toner particles in the image are transferred to the master (col. 4, lines 44-50). There is no teaching or suggestion that this method would be effective using liquid toner. In fact, it seems that if the liquid were contacted by the master, some of the liquid toner would be transferred from all areas of the belt and not just the image area. Accordingly, it is respectfully submitted that Raschke also fails to teach or suggest that a liquid toner could be used in the method disclosed by Raschke.

Raschke also fails to teach or suggest controlling the thickness of the printing form and erasing the printing form, and that the printing form is sleeve-shaped, as expressly recited in independent claim 1.

Calabrese discloses a method of making a lithographic plate using liquid toners. However, Calabrese specifically teaches that an electrostatic charge is selectively applied to the surface of the printing plate in a pattern corresponding to the image to be printed (see col. 2, lines 41-44). Therefore, Calabrese discloses that when using liquid toner, a charge is selectively applied to the printing form before the liquid toner is applied to the printing plate. Accordingly, none of the prior art of record discloses the step of fixing the liquid toner particles with a source of energy and removing the non-fixed liquid toner. Even if the teaching of Calabrese were combined with the teaching of Doyle and Raschke, the combination fails to teach or suggest "electrically charging the printing form over its entire surface", "applying liquid toner particle to the printing form so that the toner particles are attracted to the entire surface of the printing form to form a layer", and then "fixing the liquid toner particles with a source of energy in accordance with a picture to be printed, and one of removing and breaking down non-fixed liquid toner particles to change ink acceptance behavior of the layer", as expressly recited in independent claim 1. Only Raschke discloses that the toner is applied over the entire surface. For the reasons stated above, there is no motivation for using a liquid toner in method disclosed by Raschke where the printing form is charged over its entire surface and toner is applied over the entire surface before imaging.

Furthermore, Calabrese fails to teach or suggest that the printing form is a sleeve-shaped printing form. Calabrese contains no drawings and the specification does not specifically state the format of the printing form.

In view of the above remarks, it is respectfully submitted that independent claim 1 is allowable over Doyle in view of Raschke and Calabrese.

Dependent claims 2-10, 12-18, 20-22, and 29-30, being dependent on independent claim 1, are deemed allowable for the same reasons expressed above with respect to independent claim 1.


New claim 30 is added to recite "wherein the printing form is arranged without a clamping channel on a form cylinder within a printing press for at least said steps of charging the sleeve printing form, applying liquid toner particles, and fixing the liquid toner particles". Support for this limitation is found on page 11, lines 17-19 of the specification. None of the prior art seems to disclose this feature of the present invention. Doyle discloses in Fig. 1 a flat printing form substrate moving from station to station. Fig. 2 of Doyle discloses a printing form mounted on a drum. The drum requires a connector plate 104 (see page 7, lines 5-8, of Doyle). Accordingly Doyle fails to teach or suggest that the printing plate is a sleeve mounted on a form cylinder in a printing press. Raschke discloses a belt system which in no way discloses a printing form cylinder of a printing press. Calabrese does not have any Figures and the specification is silent regarding where the printing plate is mounted during imaging. Accordingly, it is respectfully submitted that dependent claim 30 is allowable over Doyle, Raschke, and Calabrese for these additional reasons.

The application is deemed to be in condition for allowance and notice to that effect is earnestly solicited.

It is believed that no fees or charges are required at this time in connection with the present application. However, if any fees or charges are required at this time, they may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,

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